



**pennsylvania**  
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Bureau of Waterways Engineering and Wetlands



# Draft Guidance on Trenchless Technology

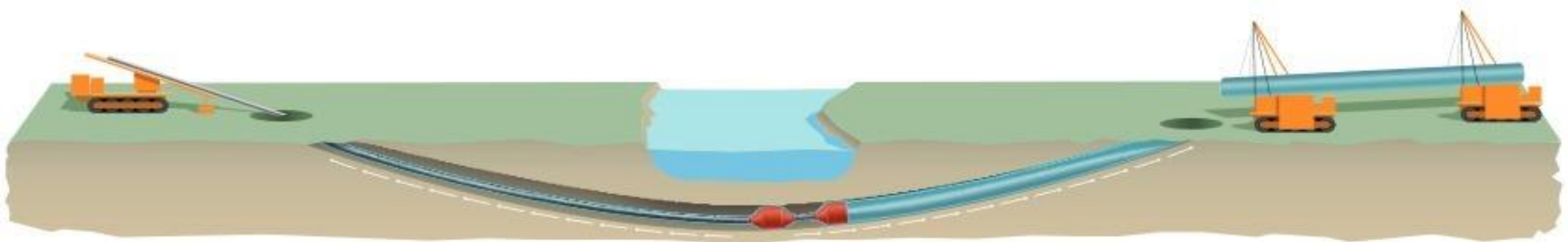
## Environmental Considerations for the Construction and Operation of Trenchless Technology

Presentation  
to the  
Citizens Advisory Council

March 2020  
Harrisburg, PA

# Trenchless Technology Technical Guidance Document

- **Charge of the Stakeholder workgroup:** *“Construction and Operation during Horizontal Directional Drilling (HDD)”*
- Stipulation states: *Enhanced Best Practices ("EBP") in the design and execution of HDDs and HDD Inadvertent Return Assessment, Preparedness, Prevention and Contingency Plans*
- HDD workgroup and the Trenchless Technology Technical Guidance Document



# ▶ Trenchless Technology Technical Guidance Document

- Site-specific geological, topographical, and hydrological analysis to be considered
- Type of analysis and documentation of adjacent features in the vicinity of the project footprint
- Potential impact of the planned activity on or from adjacent features.

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- Enhanced Best Practices for:
  - preventing and responding to Inadvertent Returns (IRs) and
  - preventing and responding to hydrological impacts from IRs;
  - groundwater quality and quantity protection;
  - procedures to identify water supplies in the vicinity of a proposed HDD beyond the use of the Pennsylvania Groundwater Information System
- Recommendations for permittee to conduct water supply testing (quality and quantity) for landowners within the vicinity of an HDD.

# Contributors to the Guidance Document

- **State Agency Representatives**

- DEP's Regional Permit Coordination Office
- DEP's Bureau of Oil and Gas
- DEP's Bureau of Waterways Engineering
- Pennsylvania Public Utility Commission (PUC)

- **Federal Agency Representatives**

- Federal Energy Regulatory Commission (FERC)
- Pipeline and Hazardous Materials Safety Administration (PHMSA)

- **Industry Representatives**

- Oil and Gas Experts
- Drilling Experts

- **Appellant Representatives**

- Clean Air Council
- Mountain Watershed Association
- Delaware Riverkeeper Network

# Trenchless Technology Technical Guidance Document

- Advisory Committees and Boards we are presenting to include:
  - Water Resources Advisory Committee (WRAC) – *October 2019*
  - Agricultural Advisory Board (AAB) – *November 2019*
  - Oil and Gas Technical Advisory Board – *January 2020*
  - Small Water Technical Advisory Committee – *February 2020*
  - Environmental Justice Advisory Board (EJAB) – *February 2020*
  - Citizens Advisory Council (CAC) – *March 2020*
  - Bureau of Safe Drinking Water – *Provided Comments on Draft*

# Trenchless Technology Technical Guidance Document

## Section 1. Preamble

### A. Foreword/Executive Summary –

- policies, procedures, and best practices to aid in the prevention of adverse environmental impacts from construction utilizing trenchless technology.
- It is a road map for project proponents
- It outlines the steps and options to be considered when a project proponent, for any project (e.g., fiber optic, pipeline, etc.) proposes the use of a trenchless technology construction method
- It includes a suitability and feasibility analysis, as well as Environmental Considerations, a design and permitting section, and a construction and compliance section.



# Trenchless Technology Technical Guidance Document

## Section 1. Preamble, cont. -

B. Disclaimer

C. Authority

D. Purpose

E. Scope

F. Definitions





# Trenchless Technology Technical Guidance Document

## Section 2. Suitability, Feasibility, and Environmental Considerations

### A. Proposed Alternative

### B. Site Suitability Analysis – looks at the physical, technical, and geological constraints of the project.

1. Existing Surface Conditions – (e.g., Topography, Water resources, cultural, etc).
2. Subsurface Conditions – (e.g., geological conditions, soil interfaces and geological contacts, groundwater, existing utilities, such as cross bores, wells).
3. Field Exploration – “ground truthing”. Geotech and Geophysical investigations and hydrogeologic investigations.

# Trenchless Technology Technical Guidance Document

## Section 2. Suitability, Feasibility, and Environmental Considerations, cont.

C. Feasibility Analysis

D. Environmental Considerations

E. Conclusion



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## Section 3. Design and Permitting

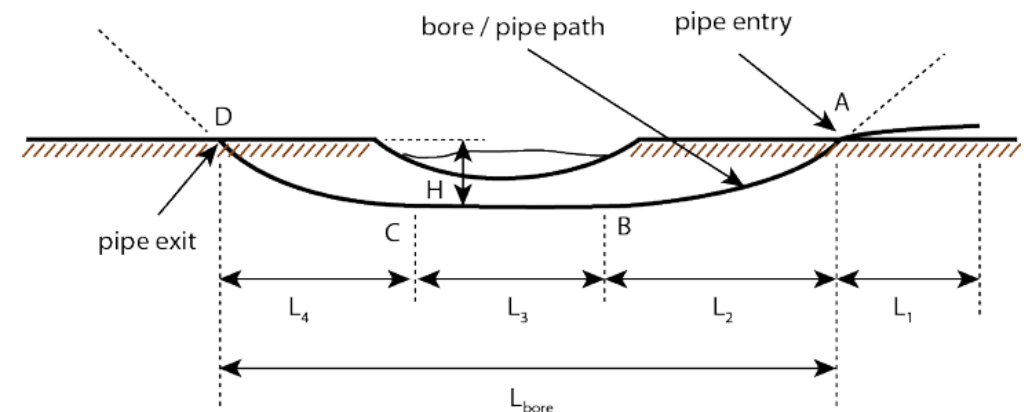
### A. Preferred Alternative

### B. Design

1. Site Constraints and Topographic Considerations
2. Inadvertent Returns (IRs)
3. Hole Flush
4. Hole Stability
5. Failure Mode Contingency Planning
6. Water Supplies
7. Waters of the Commonwealth

### C. Confirmation

### D. Permitting



# Trenchless Technology Technical Guidance Document

## Section 4. Construction and Compliance

- A. Preparedness, Prevention, and Contingency (PPC) Plan
- B. Personnel, Responsibilities, and Trainings
- C. Preconstruction Activities
- D. Drilling Fluid Management





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## Section 4. Construction and Compliance, cont.

### E. Inadvertent Return Minimization and Methodologies

1. Instrumentation
2. Fluid Circulation
3. Loss of Circulation

### F. Inspection, Compliance, Monitoring, and Emergency Response

1. Inspection Protocols
2. Monitoring Protocols
3. Compliance
4. Emergency Response Planning



# Trenchless Technology Technical Guidance Document

## Appendices

- A. Trenchless Technology Risk Evaluation
- B. Data Resource List
- C. Bore & HDD Flowchart
- D. Instructions for Determining Public Water Supply Source Locations using eMapPA
- E. Example Template for a PPC Plan – Simple and Complex Projects
- F. Example Notification Letter and Well Construction Questionnaire
- G. Example letter conveying water quality results and notification of EPA maximum contaminant Level (MCL) exceedances
- H. Technical Guidance Document – Plan Submittal Checklist(s)

# Questions